SEQUENCE LISTING

<110> Feldmann, Kenneth
Pennell, Roger
Kwok, Shing
Dang, Van-Dinh
Zhang, Hongyu

<120> NUCLEOTIDE SEQUENCES AND POLYPEPTIDES ENCODED THEREBY USEFUL FOR INCREASING PLANT SIZE AND INCREASING THE NUMBER AND SIZE OF LEAVES

<130> 2750-1573PUS1

<140> 10/572,827
<141> 2006-03-21

<150> PCT/US03/25997
<151> 2003-08-18

<160> 50

<170> PatentIn version 3.0

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Ser Phe Val Asp Gln Leu Tyr Asn His Gly Ser Arg Pro Arg Asn Ala
    50                  55                  60

Asn Gly Thr Ala Phe Lys Ala Leu Arg Arg Glu Tyr Val Glu Tyr Glu
65                  70                  75                  80

Lys Thr Asp Ala Pro Val Arg Arg Gly Ala Lys Cys Cys Gly Val Pro
                85                  90                  95

Ala Asn Pro Trp Met Gln His Phe Arg Pro Arg Ser Asp Gly Gly Asn
            100                 105                 110

Asn Ala Arg Gly Asp Gly Leu Gly Asp Ser Val Gly Asp Leu Glu Ser
        115                 120                 125

Gly Thr Glu Ala Asn Arg Lys Ser Leu Ser Ala Ser His Gly Arg Glu
    130                 135                 140

Arg Asp Ala Cys Glu Gly Glu Pro Gln Leu Leu His Glu Ser Arg Glu
145                 150                 155                 160

Val Ser Asp Gln Asn Phe Ala Asp Asp Glu Ala Glu Ala Glu Thr Glu
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ggcggtaata acgcgcgagg cgatgggctc ggggattctg tgggcgatct tgaatctggc    300

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Arg Asn Ala Asn Gly Thr Ala Phe Lys Ala Leu Arg Arg Glu Tyr Val
        35                  40                  45

Glu Tyr Glu Lys Thr Asp Ala Pro Val Arg Arg Gly Ala Lys Cys Cys
    50                  55                  60

Gly Val Pro Ala Asn Pro Trp Met Gln His Phe Arg Pro Arg Ser Asp
65                  70                  75                  80

Gly Gly Asn Asn Ala Arg Gly Asp Gly Leu Gly Asp Ser Val Gly Asp
                85                  90                  95

Leu Glu Ser Gly Thr Glu Ala Asn Arg Lys Ser Leu Ser Ala Ser His
            100                 105                 110

Gly Arg Glu Arg Asp Ala Cys Glu Gly Glu Pro Gln Leu Leu His Glu
        115                 120                 125

Ser Arg Glu Val Ser Asp Gln Asn Phe Ala Asp Asp Glu Ala Glu Ala
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Glu Thr Glu Ser Met Lys Ala Tyr Lys Lys Arg Arg Leu Ser Arg Thr
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Met Ile Asn
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ccacgtagtg atggcggtaa taacgcgcga ggcgatgggc tcggggattc tgtgggcgat    240

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gacgcttgtg agggagaacc ccagcttctc catgaaagta gagaggtctc tgatcaaaat    360
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<213> Zea mays subsp. mays

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35 40 45

Gly Val Pro Ala Asn Pro Trp Met Gln His Phe Arg Pro Arg Ser Asp
50 55 60

Gly Gly Asn Asn Ala Arg Gly Asp Gly Leu Gly Asp Ser Val Gly Asp
65 70 75 80

Leu Glu Ser Gly Thr Glu Ala Asn Arg Lys Ser Leu Ser Ala Ser His
85 90 95

Gly Arg Glu Arg Asp Ala Cys Glu Gly Glu Pro Gln Leu Leu His Glu
100 105 110

Ser Arg Glu Val Ser Asp Gln Asn Phe Ala Asp Asp Glu Ala Glu Ala
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Glu Thr Glu Ser Met Lys Ala Tyr Lys Lys Arg Arg Leu Ser Arg Thr
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Met Ile Asn
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<213> Zea mays subsp. mays

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<222> (1)..(1494)
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tatataagct ccatggaggc ttcttttgtc gatcagctat acaaccatgg aaaccatccg 180

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<213> Zea mays subsp. mays

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<223> ceres Seq. ID no. 12410517

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Trp	Thr	Asp	Glu	Arg	His	Met	Leu	Tyr	Ile	Ser	Ser	Met	Glu	Ala	Ser
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Phe	Val	Asp	Gln	Leu	Tyr	Asn	His	Gly	Asn	His	Pro	His	Asp	Ala	Asn
	50					55					60				
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Tyr	Glu	Lys	Thr	Ser	Ala	Pro	Val	Arg	Ser	Gly	Ala	Lys	Cys	Cys	Val
				85					90					95	
Pro	Ala	Asn	Pro	Trp	Ile	Arg	His	Phe	Arg	Pro	Arg	Asp	Cys	Gly	Ser
			100					105					110		
Asn	Ala	Gln	Ser	Asp	Ala	Val	Glu	Ala	Ser	Val	Gly	Asp	His	Glu	Ser
		115					120					125			
Gly	Thr	Gln	Ala	Ser	Arg	Lys	Ser	Pro	Ser	Val	Ser	His	Gly	Arg	Glu
	130					135					140				
Arg	Gly	Ala	Cys	Lys	Gly	Glu	Pro	Gln	Ile	Leu	His	Glu	Ser	Thr	Glu
145					150					155					160
Val	Ser	Asp	Gln	Asn	Phe	Ala	Asp	Asp	Glu	Ala	Glu	Ala	Glu	Thr	Glu
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Gly Ala Glu
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<213> Zea mays subsp. mays

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20 25 30

His Asp Ala Asn Gly Ala Gly Phe Lys Val Leu Arg Arg Gly Val Trp
35 40 45

Glu Tyr Ile Glu Tyr Glu Lys Thr Ser Ala Pro Val Arg Ser Gly Ala
50 55 60

Lys Cys Cys Val Pro Ala Asn Pro Trp Ile Arg His Phe Arg Pro Arg
65 70 75 80

Asp Cys Gly Ser Asn Ala Gln Ser Asp Ala Val Glu Ala Ser Val Gly
85 90 95

Asp His Glu Ser Gly Thr Gln Ala Ser Arg Lys Ser Pro Ser Val Ser
100 105 110

His Gly Arg Glu Arg Gly Ala Cys Lys Gly Glu Pro Gln Ile Leu His
115 120 125

Glu Ser Thr Glu Val Ser Asp Gln Asn Phe Ala Asp Asp Glu Ala Glu
130 135 140

Ala Glu Thr Glu Ser Met Lys Ala Cys Lys Lys Arg Arg Leu Ser Arg
145 150 155 160

Ala Leu His Ser Gly Ala Glu
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<210> 13
<211> 471
<212> DNA
<213> Zea mays subsp. mays

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atcgagtatg agaagaccag tgcccctgtg cgaagtgggg ctaaatgctg cgtccctgca 180

aatccttgga tccggcattt caggccacgt gactgcggta gtaacgcaca gagtgacgcg 240

gtcgaggcct cagtgggcga ccatgagtcg ggtactcagg caagccgcaa gagcccttca 300

gtgtctcatg gaagggaacg gggagcttgt aagggagaac cccagattct acatgaaagt 360

acagaggtct ctgatcaaaa ttttgctgac gatgaggctg aagctgaaac agaatcaatg 420

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<213> Zea mays subsp. mays

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20 25 30

Leu Arg Arg Gly Val Trp Glu Tyr Ile Glu Tyr Glu Lys Thr Ser Ala
35 40 45

Pro Val Arg Ser Gly Ala Lys Cys Cys Val Pro Ala Asn Pro Trp Ile
50 55 60

Arg His Phe Arg Pro Arg Asp Cys Gly Ser Asn Ala Gln Ser Asp Ala
65 70 75 80

Val Glu Ala Ser Val Gly Asp His Glu Ser Gly Thr Gln Ala Ser Arg
85 90 95

Lys Ser Pro Ser Val Ser His Gly Arg Glu Arg Gly Ala Cys Lys Gly
100 105 110

Glu Pro Gln Ile Leu His Glu Ser Thr Glu Val Ser Asp Gln Asn Phe
115 120 125

Ala Asp Asp Glu Ala Glu Ala Glu Thr Glu Ser Met Lys Ala Cys Lys
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Lys Arg Arg Leu Ser Arg Ala Leu His Ser Gly Ala Glu
145 150 155

<210> 15
<211> 409
<212> DNA
<213> Brassica napus

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aagctccgac gattcttctt ctgtagggga agagacgact tcttcaatgt attctgcgag 180

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ggaagcttcc ttcgttgatc agctgtacaa ctccctcggt gcgctcggct ccaaaaacaa 300

caaggatact gtcggaccat cgagaaggtt cggtgatggt ggaaaacctt ctgaagaaca 360

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<210> 16
<211> 276
<212> DNA
<213> Brassica napus

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gatgagaagc atagtttgta tcttaaatca atggaagctt ccttcgttga tcagctgtac 180

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ttcggtgatg gtggaaaacc ttctgaagaa caggta 276

<210> 17
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<212> PRT
<213> Brassica napus

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<223> ceres Seq. ID no. 4788143

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Ser Ser Val Gly Glu Glu Thr Thr Ser Ser Met Tyr Ser Ala Arg Asn
20 25 30

Glu Asp Thr Pro Thr Glu Trp Thr Asp Glu Lys His Ser Leu Tyr Leu
35 40 45

Lys Ser Met Glu Ala Ser Phe Val Asp Gln Leu Tyr Asn Ser Leu Gly
50 55 60

Ala Leu Gly Ser Lys Asn Asn Lys Asp Thr Val Gly Pro Ser Arg Arg
65 70 75 80

Phe Gly Asp Gly Gly Lys Pro Ser Glu Glu Gln Val
85 90

<210> 18
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<212> DNA
<213> Brassica napus

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<212> PRT
<213> Brassica napus

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<223> ceres Seq. ID no. 4788144

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Lys His Ser Leu Tyr Leu Lys Ser Met Glu Ala Ser Phe Val Asp Gln
20 25 30

Leu Tyr Asn Ser Leu Gly Ala Leu Gly Ser Lys Asn Asn Lys Asp Thr
35 40 45

Val Gly Pro Ser Arg Arg Phe Gly Asp Gly Gly Lys Pro Ser Glu Glu
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Gln Val
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<210> 20
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<212> DNA
<213> Brassica napus

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<210> 21
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<212> PRT
<213> Brassica napus

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<222> (1)..(62)
<223> ceres Seq. ID no. 4788145

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Val Arg Ser Ala Pro Lys Thr Thr Arg Ile Leu Ser Asp His Arg Glu
35 40 45

Gly Ser Val Met Val Glu Asn Leu Leu Lys Asn Arg Tyr Glu
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<210> 22
<211> 486
<212> DNA
<213> Brassica napus

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<223> ceres Seq. ID no. 4796909

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agcccaagct ccgacgattc ttcttctgta ggggaagaga cgacttcttc aatgtattct 180

gcgaggaatg aagatacgcc tacagaatgg accgatgaga agcatagttt gtatcttaaa 240

tcaatggaag cttccttcgt tgatcagctg tacaactccc tcggtgcgct cggctccaaa 300

aacaacaagg atactgtcgg accatcgaga aggttcggtg atggtggaaa accttctgaa 360

gaacagaaga tgaatgtgag gcagcctgag tatcgtctca atggaagaca cggtcgtcgc 420

tctcacgagt ttcttaggag tccatggatc aagcactata agccttcacc aaagtcccta 480

acagat 486

<210> 23
<211> 393
<212> DNA
<213> Brassica napus

<400> 23
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gaagagacga cttcttcaat gtattctgcg aggaatgaag atacgcctac agaatggacc 120

gatgagaagc atagtttgta tcttaaatca atggaagctt ccttcgttga tcagctgtac 180

aactccctcg gtgcgctcgg ctccaaaaac aacaaggata ctgtcggacc atcgagaagg 240

ttcggtgatg gtggaaaacc ttctgaagaa cagaagatga atgtgaggca gcctgagtat 300

cgtctcaatg gaagacacgg tcgtcgctct cacgagtttc ttaggagtcc atggatcaag 360

cactataagc cttcaccaaa gtccctaaca gat 393

<210> 24
<211> 131
<212> PRT
<213> Brassica napus

<220>
<221> peptide
<222> (1)..(131)
<223> ceres Seq. ID no. 4796910

<400> 24
Met Val Gly Asp Tyr Arg Glu Asn Tyr Ser Pro Ser Ser Asp Asp Ser
1 5 10 15

Ser Ser Val Gly Glu Glu Thr Thr Ser Ser Met Tyr Ser Ala Arg Asn
20 25 30

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Glu Asp Thr Pro Thr Glu Trp Thr Asp Glu Lys His Ser Leu Tyr Leu
        35                  40                  45

Lys Ser Met Glu Ala Ser Phe Val Asp Gln Leu Tyr Asn Ser Leu Gly
    50                  55                  60

Ala Leu Gly Ser Lys Asn Asn Lys Asp Thr Val Gly Pro Ser Arg Arg
65                  70                  75                  80

Phe Gly Asp Gly Gly Lys Pro Ser Glu Glu Gln Lys Met Asn Val Arg
                85                  90                  95

Gln Pro Glu Tyr Arg Leu Asn Gly Arg His Gly Arg Arg Ser His Glu
            100                 105                 110

Phe Leu Arg Ser Pro Trp Ile Lys His Tyr Lys Pro Ser Pro Lys Ser
        115                 120                 125

Leu Thr Asp
    130
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<210> 25
<211> 315
<212> DNA
<213> Brassica napus

<400> 25
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tatcttaaat caatggaagc ttccttcgtt gatcagctgt acaactccct cggtgcgctc 120

ggctccaaaa acaacaagga tactgtcgga ccatcgagaa ggttcggtga tggtggaaaa 180

ccttctgaag aacagaagat gaatgtgagg cagcctgagt atcgtctcaa tggaagacac 240

ggtcgtcgct ctcacgagtt tcttaggagt ccatggatca agcactataa gccttcacca 300

aagtccctaa cagat 315

<210> 26
<211> 105
<212> PRT
<213> Brassica napus

<220>
<221> peptide
<222> (1)..(105)
<223> ceres Seq. ID no. 4796911

<400> 26
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1               5                   10                  15

Lys His Ser Leu Tyr Leu Lys Ser Met Glu Ala Ser Phe Val Asp Gln
            20                  25                  30

Leu Tyr Asn Ser Leu Gly Ala Leu Gly Ser Lys Asn Asn Lys Asp Thr
        35                  40                  45

Val Gly Pro Ser Arg Arg Phe Gly Asp Gly Gly Lys Pro Ser Glu Glu
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50 55 60

Gln Lys Met Asn Val Arg Gln Pro Glu Tyr Arg Leu Asn Gly Arg His
65 70 75 80

Gly Arg Arg Ser His Glu Phe Leu Arg Ser Pro Trp Ile Lys His Tyr
85 90 95

Lys Pro Ser Pro Lys Ser Leu Thr Asp
100 105

<210> 27
<211> 243
<212> DNA
<213> Brassica napus

<400> 27
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aacaaggata ctgtcggacc atcgagaagg ttcggtgatg gtggaaaacc ttctgaagaa 120

cagaagatga atgtgaggca gcctgagtat cgtctcaatg gaagacacgg tcgtcgctct 180

cacgagtttc ttaggagtcc atggatcaag cactataagc cttcaccaaa gtccctaaca 240

gat 243

<210> 28
<211> 81
<212> PRT
<213> Brassica napus

<220>
<221> peptide
<222> (1)..(81)
<223> ceres Seq. ID no. 4796912

<400> 28
Met Glu Ala Ser Phe Val Asp Gln Leu Tyr Asn Ser Leu Gly Ala Leu
1 5 10 15

Gly Ser Lys Asn Asn Lys Asp Thr Val Gly Pro Ser Arg Arg Phe Gly
20 25 30

Asp Gly Gly Lys Pro Ser Glu Glu Gln Lys Met Asn Val Arg Gln Pro
35 40 45

Glu Tyr Arg Leu Asn Gly Arg His Gly Arg Arg Ser His Glu Phe Leu
50 55 60

Arg Ser Pro Trp Ile Lys His Tyr Lys Pro Ser Pro Lys Ser Leu Thr
65 70 75 80

Asp

<210> 29
<211> 1014
<212> DNA
<213> Arabidopsis thaliana

<220>
<221> misc_feature
<222> (1)..(1014)
<223> ceres Seq. ID no. 12321174

<400> 29
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tgattgcacg gtgaatattg tctctctgga gaaggatcgc gatgtttcgg aggcgtcggc 180

tgaatctcag agcgagtcga ctctttcgaa ctcgctcgat tccggtgtta cggctgagac 240

ctctcgttct gatgctgatt ccaaactgga tgaatgtact gcttggacga atgagaaaca 300

caactcatat cttgattatt tagagagctc gtttgttagg caattatact ccttgcttgg 360

aggtgggact cagagacttt ctagaactcg tgatgtgcag tctaactctc ataaatcagc 420

tgatcagttt accgtcctac aaaatggttg ctggcagaag gttaactttg gaaagaaaca 480

atcttgtttg gagacttcat ctgagtttcg ttttcacaga aattcattga gaaataagcc 540

tgaaaattcc aacggaaatt acaccatggg aactactgtc caaggagatg tgttatgtca 600

tgacgaaacc aaacactcag aggcgtcagg gcagaatttc agagaagaag aagaagaaga 660

agagaaggga gaggtgagca aaaaacgaga aagagaagca aataacgatg atagttcatt 720

gaaggaggat caggttgtgc cggtaaggat ggtgaagccc agaacgtgaa agcattagga 780

agtgtagatg aaatactatg aatagagata aagaaataga agaaggtgtg gttacgaatg 840

tggagagggt tttgtttgtt gtatagcgtg aggctaaaga gagccttcct tataaaggga 900

tccaatggga tatggaaata ggattggtgt ttgttttcgt taaattttgt ctaatgttaa 960

ctaggggaaa agttatctga tagtattagc atcttatggc aattttattc tttt 1014

<210> 30
<211> 654
<212> DNA
<213> Arabidopsis thaliana

<400> 30
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gcgtcggctg aatctcagag cgagtcgact ctttcgaact cgctcgattc cggtgttacg 120

gctgagacct ctcgttctga tgctgattcc aaactggatg aatgtactgc ttggacgaat 180

gagaaacaca actcatatct tgattattta gagagctcgt ttgttaggca attatactcc 240

ttgcttggag gtgggactca gagactttct agaactcgtg atgtgcagtc taactctcat 300

aaatcagctg atcagtttac cgtcctacaa aatggttgct ggcagaaggt taactttgga 360

aagaaacaat cttgtttgga gacttcatct gagtttcgtt ttcacagaaa ttcattgaga 420

aataagcctg aaaattccaa cggaaattac accatgggaa ctactgtcca aggagatgtg 480

ttatgtcatg acgaaaccaa acactcagag gcgtcagggc agaatttcag agaagaagaa 540

gaagaagaag agaagggaga ggtgagcaaa aaacgagaaa gagaagcaaa taacgatgat 600

agttcattga aggaggatca ggttgtgccg gtaaggatgg tgaagcccag aacg 654

<210> 31
<211> 218
<212> PRT
<213> Arabidopsis thaliana

<220>
<221> peptide
<222> (1)..(218)
<223> ceres Seq. ID no. 12321175

<400> 31

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Met Glu Asn Asp Cys Thr Val Asn Ile Val Ser Leu Glu Lys Asp Arg
1               5                  10                  15

Asp Val Ser Glu Ala Ser Ala Glu Ser Gln Ser Glu Ser Thr Leu Ser
            20                  25                  30

Asn Ser Leu Asp Ser Gly Val Thr Ala Glu Thr Ser Arg Ser Asp Ala
        35                  40                  45

Asp Ser Lys Leu Asp Glu Cys Thr Ala Trp Thr Asn Glu Lys His Asn
    50                  55                  60

Ser Tyr Leu Asp Tyr Leu Glu Ser Ser Phe Val Arg Gln Leu Tyr Ser
65                  70                  75                  80

Leu Leu Gly Gly Gly Thr Gln Arg Leu Ser Arg Thr Arg Asp Val Gln
                85                  90                  95

Ser Asn Ser His Lys Ser Ala Asp Gln Phe Thr Val Leu Gln Asn Gly
            100                 105                 110

Cys Trp Gln Lys Val Asn Phe Gly Lys Lys Gln Ser Cys Leu Glu Thr
        115                 120                 125

Ser Ser Glu Phe Arg Phe His Arg Asn Ser Leu Arg Asn Lys Pro Glu
    130                 135                 140

Asn Ser Asn Gly Asn Tyr Thr Met Gly Thr Thr Val Gln Gly Asp Val
145                 150                 155                 160

Leu Cys His Asp Glu Thr Lys His Ser Glu Ala Ser Gly Gln Asn Phe
                165                 170                 175

Arg Glu Glu Glu Glu Glu Glu Glu Lys Gly Glu Val Ser Lys Lys Arg
            180                 185                 190

Glu Arg Glu Ala Asn Asn Asp Asp Ser Ser Leu Lys Glu Asp Gln Val
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195 200 205

Val Pro Val Arg Met Val Lys Pro Arg Thr
210 215

<210> 32
<211> 1027
<212> DNA
<213> Arabidopsis thaliana

<220>
<221> misc_feature
<222> (1)..(1027)
<223> ceres Seq. ID no. 12323601

<400> 32
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ttcttccatg tactctgcgg ggaaagagta tatggaaaca gaatggacta atgagaagca 240

tagtttatat cttaaatcta tggaagcttc attcgtagat cagttatata actcgctcgg 300

agctctcggg aagaacgaga atgtatccga atcaacgagg ttcggtagcg gtagaaaacc 360

gtctcaagaa cagttcaagg ttcttcatga tggtttctgg cagaagatta atgtgaaaca 420

acctgaacat cggattaacg gaaggcacgg tggtaattct catgagtttc ttaggagtcc 480

atggattaag cattataaac ctttagtaaa gacacaaatc ccggtaacgg atgagcccga 540

aaatcaagtt gttagcagct ctaatgggaa gaagggaata tgcagctctg gctcagcctc 600

tagtctcaag cagctaagct ctcattcgcg tgaccacgac caaatcagcg ttggagaagc 660

agaggtatcg gatcagaact ttgttaacga aggaataaaa ggcgaaaacg gaagctcgaa 720

gaagatgaag acggtgatga tgagtgaatc gtcgagtacc gatcaggttg ttccactcaa 780

taagctcttg caacatgacg taaatttgaa gtctgtttct tgagaggtca gatggtgaag 840

ctttatatga ggagagaatt ttgtaatgta tatatatttg cataacttat aagtcaaatt 900

tactatcctt agttacaagt ttcttcatca tatatcccta actataaata tatttatatg 960

ctcatgtgag tggattcatt tgtactgtaa aacccttaga aagacgtcaa attagtattt 1020

gatggtc 1027

<210> 33
<211> 819
<212> DNA
<213> Arabidopsis thaliana

<400> 33
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ctccacaaag ataagccaac aatggttggt gattacagag gacgctttag tagccgtcgt 120

ttctccgacg actctgacga ttcttccgac gatgcttctt ccgtggaggg agagaccact 180

tcttccatgt actctgcggg gaaagagtat atggaaacag aatggactaa tgagaagcat 240

agtttatatc ttaaatctat ggaagcttca ttcgtagatc agttatataa ctcgctcgga 300

gctctcggga agaacgagaa tgtatccgaa tcaacgaggt tcggtagcgg tagaaaaccg 360

tctcaagaac agttcaaggt tcttcatgat ggtttctggc agaagattaa tgtgaaacaa 420

cctgaacatc ggattaacgg aaggcacggt ggtaattctc atgagtttct taggagtcca 480

tggattaagc attataaacc tttagtaaag acacaaatcc cggtaacgga tgagcccgaa 540

aatcaagttg ttagcagctc taatgggaag aagggaatat gcagctctgg ctcagcctct 600

agtctcaagc agctaagctc tcattcgcgt gaccacgacc aaatcagcgt tggagaagca 660

gaggtatcgg atcagaactt tgttaacgaa ggaataaaag gcgaaaacgg aagctcgaag 720

aagatgaaga cggtgatgat gagtgaatcg tcgagtaccg atcaggttgt tccactcaat 780

aagctcttgc aacatgacgt aaatttgaag tctgtttct 819

<210> 34
<211> 273
<212> PRT
<213> Arabidopsis thaliana

<220>
<221> peptide
<222> (1)..(273)
<223> ceres Seq. ID no. 12323602

<400> 34

Asp Ile Leu Phe Leu Ser Phe Ser Leu Ile Phe Phe Ile Phe Phe Phe
1 5 10 15

Phe Ser Leu Ser Leu His Lys Asp Lys Pro Thr Met Val Gly Asp Tyr
20 25 30

Arg Gly Arg Phe Ser Ser Arg Arg Phe Ser Asp Asp Ser Asp Asp Ser
35 40 45

Ser Asp Asp Ala Ser Ser Val Glu Gly Glu Thr Thr Ser Ser Met Tyr
50 55 60

Ser Ala Gly Lys Glu Tyr Met Glu Thr Glu Trp Thr Asn Glu Lys His
65 70 75 80

Ser Leu Tyr Leu Lys Ser Met Glu Ala Ser Phe Val Asp Gln Leu Tyr
85 90 95

Asn Ser Leu Gly Ala Leu Gly Lys Asn Glu Asn Val Ser Glu Ser Thr
100 105 110

Arg Phe Gly Ser Gly Arg Lys Pro Ser Gln Glu Gln Phe Lys Val Leu
115 120 125

His Asp Gly Phe Trp Gln Lys Ile Asn Val Lys Gln Pro Glu His Arg

130 135 140

Ile Asn Gly Arg His Gly Gly Asn Ser His Glu Phe Leu Arg Ser Pro
145 150 155 160

Trp Ile Lys His Tyr Lys Pro Leu Val Lys Thr Gln Ile Pro Val Thr
165 170 175

Asp Glu Pro Glu Asn Gln Val Val Ser Ser Ser Asn Gly Lys Lys Gly
180 185 190

Ile Cys Ser Ser Gly Ser Ala Ser Ser Leu Lys Gln Leu Ser Ser His
195 200 205

Ser Arg Asp His Asp Gln Ile Ser Val Gly Glu Ala Glu Val Ser Asp
210 215 220

Gln Asn Phe Val Asn Glu Gly Ile Lys Gly Glu Asn Gly Ser Ser Lys
225 230 235 240

Lys Met Lys Thr Val Met Met Ser Glu Ser Ser Ser Thr Asp Gln Val
245 250 255

Val Pro Leu Asn Lys Leu Leu Gln His Asp Val Asn Leu Lys Ser Val
260 265 270

Ser

<210> 35
<211> 738
<212> DNA
<213> Arabidopsis thaliana

<400> 35
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tcttccgacg atgcttcttc cgtggaggga gagaccactt cttccatgta ctctgcgggg 120

aaagagtata tggaaacaga atggactaat gagaagcata gtttatatct taaatctatg 180

gaagcttcat tcgtagatca gttatataac tcgctcggag ctctcgggaa gaacgagaat 240

gtatccgaat caacgaggtt cggtagcggt agaaaaccgt ctcaagaaca gttcaaggtt 300

cttcatgatg gtttctggca gaagattaat gtgaaacaac ctgaacatcg gattaacgga 360

aggcacggtg gtaattctca tgagtttctt aggagtccat ggattaagca ttataaacct 420

ttagtaaaga cacaaatccc ggtaacggat gagcccgaaa atcaagttgt tagcagctct 480

aatgggaaga agggaatatg cagctctggc tcagcctcta gtctcaagca gctaagctct 540

cattcgcgtg accacgacca aatcagcgtt ggagaagcag aggtatcgga tcagaacttt 600

gttaacgaag gaataaaagg cgaaaacgga agctcgaaga agatgaagac ggtgatgatg 660

agtgaatcgt cgagtaccga tcaggttgtt ccactcaata agctcttgca acatgacgta 720

aatttgaagt ctgtttct 738

<210> 36
<211> 246
<212> PRT

<213> Arabidopsis thaliana

<220>
<221> peptide
<222> (1)..(246)
<223> ceres Seq. ID no. 12323603

<400> 36

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Met Val Gly Asp Tyr Arg Gly Arg Phe Ser Ser Arg Arg Phe Ser Asp
1               5                  10                  15

Asp Ser Asp Asp Ser Ser Asp Asp Ala Ser Ser Val Glu Gly Glu Thr
            20                  25                  30

Thr Ser Ser Met Tyr Ser Ala Gly Lys Glu Tyr Met Glu Thr Glu Trp
        35                  40                  45

Thr Asn Glu Lys His Ser Leu Tyr Leu Lys Ser Met Glu Ala Ser Phe
    50                  55                  60

Val Asp Gln Leu Tyr Asn Ser Leu Gly Ala Leu Gly Lys Asn Glu Asn
65                  70                  75                  80

Val Ser Glu Ser Thr Arg Phe Gly Ser Gly Arg Lys Pro Ser Gln Glu
                85                  90                  95

Gln Phe Lys Val Leu His Asp Gly Phe Trp Gln Lys Ile Asn Val Lys
            100                 105                 110

Gln Pro Glu His Arg Ile Asn Gly Arg His Gly Gly Asn Ser His Glu
        115                 120                 125

Phe Leu Arg Ser Pro Trp Ile Lys His Tyr Lys Pro Leu Val Lys Thr
    130                 135                 140

Gln Ile Pro Val Thr Asp Glu Pro Glu Asn Gln Val Val Ser Ser Ser
145                 150                 155                 160

Asn Gly Lys Lys Gly Ile Cys Ser Ser Gly Ser Ala Ser Ser Leu Lys
                165                 170                 175

Gln Leu Ser Ser His Ser Arg Asp His Asp Gln Ile Ser Val Gly Glu
            180                 185                 190

Ala Glu Val Ser Asp Gln Asn Phe Val Asn Glu Gly Ile Lys Gly Glu
        195                 200                 205

Asn Gly Ser Ser Lys Lys Met Lys Thr Val Met Met Ser Glu Ser Ser
    210                 215                 220

Ser Thr Asp Gln Val Val Pro Leu Asn Lys Leu Leu Gln His Asp Val
225                 230                 235                 240

Asn Leu Lys Ser Val Ser
                245
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<210> 37
<211> 633
<212> DNA
<213> Arabidopsis thaliana

<400> 37
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gggaagaacg agaatgtatc cgaatcaacg aggttcggta gcggtagaaa accgtctcaa 180

gaacagttca aggttcttca tgatggtttc tggcagaaga ttaatgtgaa acaacctgaa 240

catcggatta acggaaggca cggtggtaat tctcatgagt ttcttaggag tccatggatt 300

aagcattata aacctttagt aaagacacaa atcccggtaa cggatgagcc cgaaaatcaa 360

gttgttagca gctctaatgg gaagaaggga atatgcagct ctggctcagc ctctagtctc 420

aagcagctaa gctctcattc gcgtgaccac gaccaaatca gcgttggaga agcagaggta 480

tcggatcaga actttgttaa cgaaggaata aaaggcgaaa acggaagctc gaagaagatg 540

aagacggtga tgatgagtga atcgtcgagt accgatcagg ttgttccact caataagctc 600

ttgcaacatg acgtaaattt gaagtctgtt tct 633

<210> 38
<211> 211
<212> PRT
<213> Arabidopsis thaliana

<220>
<221> peptide
<222> (1)..(211)
<223> ceres Seq. ID no. 12323604

<400> 38
Met Tyr Ser Ala Gly Lys Glu Tyr Met Glu Thr Glu Trp Thr Asn Glu
1 5 10 15

Lys His Ser Leu Tyr Leu Lys Ser Met Glu Ala Ser Phe Val Asp Gln
20 25 30

Leu Tyr Asn Ser Leu Gly Ala Leu Gly Lys Asn Glu Asn Val Ser Glu
35 40 45

Ser Thr Arg Phe Gly Ser Gly Arg Lys Pro Ser Gln Glu Gln Phe Lys
50 55 60

Val Leu His Asp Gly Phe Trp Gln Lys Ile Asn Val Lys Gln Pro Glu
65 70 75 80

His Arg Ile Asn Gly Arg His Gly Gly Asn Ser His Glu Phe Leu Arg
85 90 95

Ser Pro Trp Ile Lys His Tyr Lys Pro Leu Val Lys Thr Gln Ile Pro
100 105 110

Val Thr Asp Glu Pro Glu Asn Gln Val Val Ser Ser Ser Asn Gly Lys
115 120 125

Lys Gly Ile Cys Ser Ser Gly Ser Ala Ser Ser Leu Lys Gln Leu Ser
130 135 140

Ser His Ser Arg Asp His Asp Gln Ile Ser Val Gly Glu Ala Glu Val

145 150 155 160

Ser Asp Gln Asn Phe Val Asn Glu Gly Ile Lys Gly Glu Asn Gly Ser
165 170 175

Ser Lys Lys Met Lys Thr Val Met Met Ser Glu Ser Ser Ser Thr Asp
180 185 190

Gln Val Val Pro Leu Asn Lys Leu Leu Gln His Asp Val Asn Leu Lys
195 200 205

Ser Val Ser
210

<210> 39
<211> 960
<212> DNA
<213> Arabidopsis thaliana

<220>
<221> misc_feature
<222> (1)..(960)
<223> ceres Seq. ID no. 13491409

<400> 39
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ccacaaagat aagccaacaa tggttggtga ttacagagga cgctttagta gccgtcgttt 120

ctccgatgac tctgacgatt cttccgacga tgcttcttcc gtggagggag agaccacttc 180

ttccatgtac tctgcgggga aagagtatat ggaaacagaa tggactaatg agaagcatag 240

tttatatctt aaatctatgg aagcttcatt cgtagatcag ttatataact cgctcggagc 300

tctcgggaag aacgagaatg tatccgaatc aacgaggttc ggtagcggta gaaaaccgtc 360

tcaagaacag ttcaaggttc ttcatgatgg tttctggcag aagattaatg tgaaacaacc 420

tgaacatcgg attaacggaa ggcacggtgg taattctcat gagtttctta ggagtccatg 480

gattaagcat tataaacctt tagtaaagac acaaatcccg gtaacggatg agcccgaaaa 540

tcaagttgtt agcagctcta atgggaagaa gggaatatgc agctctggct cagcctctag 600

tctcaagcag ctaagctctc attcgcgtga ccacgaccaa atcagcgttg gagaagcaga 660

ggtatcggat cagaactttg ttaacgaagg aataaaaggc gaaaacggaa gctcgaagaa 720

gatgaagacg gtgatgatga gtgaatcgtc gagtaccgat caggttgttc cactcaataa 780

actcttgcaa catgacgtaa atttgaagtc tgtttcttga gaggtcagat ggtgaagctt 840

tatatgagga gagaattttg taatgtatat atatttgcat aacttataag tcaaatttac 900

tatccttagt tacaagtttc ttcatcatat atccctaact ataaatatat ttatatgccc 960

960

<210> 40

<211> 816
<212> DNA
<213> Arabidopsis thaliana

<400> 40
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cacaaagata agccaacaat ggttggtgat tacagaggac gctttagtag ccgtcgtttc    120

tccgatgact ctgacgattc ttccgacgat gcttcttccg tggagggaga gaccacttct    180

tccatgtact ctgcggggaa agagtatatg gaaacagaat ggactaatga gaagcatagt    240

ttatatctta aatctatgga agcttcattc gtagatcagt tatataactc gctcggagct    300

ctcgggaaga acgagaatgt atccgaatca acgaggttcg gtagcggtag aaaaccgtct    360

caagaacagt tcaaggttct tcatgatggt ttctggcaga agattaatgt gaaacaacct    420

gaacatcgga ttaacggaag gcacggtggt aattctcatg agtttcttag gagtccatgg    480

attaagcatt ataaaccttt agtaaagaca caaatcccgg taacggatga gcccgaaaat    540

caagttgtta gcagctctaa tgggaagaag ggaatatgca gctctggctc agcctctagt    600

ctcaagcagc taagctctca ttcgcgtgac cacgaccaaa tcagcgttgg agaagcagag    660

gtatcggatc agaactttgt taacgaagga ataaaaggcg aaaacggaag ctcgaagaag    720

atgaagacgg tgatgatgag tgaatcgtcg agtaccgatc aggttgttcc actcaataaa    780

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<210> 41
<211> 272
<212> PRT
<213> Arabidopsis thaliana

<220>
<221> peptide
<222> (1)..(272)
<223> ceres Seq. ID no. 13491410

<400> 41
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Ser Leu Ser Leu His Lys Asp Lys Pro Thr Met Val Gly Asp Tyr Arg
            20                  25                  30

Gly Arg Phe Ser Ser Arg Arg Phe Ser Asp Asp Ser Asp Asp Ser Ser
        35                  40                  45

Asp Asp Ala Ser Ser Val Glu Gly Glu Thr Thr Ser Ser Met Tyr Ser
    50                  55                  60

Ala Gly Lys Glu Tyr Met Glu Thr Glu Trp Thr Asn Glu Lys His Ser
65                  70                  75                  80

Leu Tyr Leu Lys Ser Met Glu Ala Ser Phe Val Asp Gln Leu Tyr Asn
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85 90 95

Ser Leu Gly Ala Leu Gly Lys Asn Glu Asn Val Ser Glu Ser Thr Arg
100 105 110

Phe Gly Ser Gly Arg Lys Pro Ser Gln Glu Gln Phe Lys Val Leu His
115 120 125

Asp Gly Phe Trp Gln Lys Ile Asn Val Lys Gln Pro Glu His Arg Ile
130 135 140

Asn Gly Arg His Gly Gly Asn Ser His Glu Phe Leu Arg Ser Pro Trp
145 150 155 160

Ile Lys His Tyr Lys Pro Leu Val Lys Thr Gln Ile Pro Val Thr Asp
165 170 175

Glu Pro Glu Asn Gln Val Val Ser Ser Ser Asn Gly Lys Lys Gly Ile
180 185 190

Cys Ser Ser Gly Ser Ala Ser Ser Leu Lys Gln Leu Ser Ser His Ser
195 200 205

Arg Asp His Asp Gln Ile Ser Val Gly Glu Ala Glu Val Ser Asp Gln
210 215 220

Asn Phe Val Asn Glu Gly Ile Lys Gly Glu Asn Gly Ser Ser Lys Lys
225 230 235 240

Met Lys Thr Val Met Met Ser Glu Ser Ser Ser Thr Asp Gln Val Val
245 250 255

Pro Leu Asn Lys Leu Leu Gln His Asp Val Asn Leu Lys Ser Val Ser
260 265 270

<210> 42
<211> 738
<212> DNA
<213> Arabidopsis thaliana

<400> 42
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tcttccgacg atgcttcttc cgtggaggga gagaccactt cttccatgta ctctgcgggg 120

aaagagtata tggaaacaga atggactaat gagaagcata gtttatatct taaatctatg 180

gaagcttcat tcgtagatca gttatataac tcgctcggag ctctcgggaa gaacgagaat 240

gtatccgaat caacgaggtt cggtagcggt agaaaaccgt ctcaagaaca gttcaaggtt 300

cttcatgatg gtttctggca gaagattaat gtgaaacaac ctgaacatcg gattaacgga 360

aggcacggtg gtaattctca tgagtttctt aggagtccat ggattaagca ttataaacct 420

ttagtaaaga cacaaatccc ggtaacggat gagcccgaaa atcaagttgt tagcagctct 480

aatgggaaga agggaatatg cagctctggc tcagcctcta gtctcaagca gctaagctct 540

cattcgcgtg accacgacca aatcagcgtt ggagaagcag aggtatcgga tcagaacttt 600

gttaacgaag gaataaaagg cgaaaacgga agctcgaaga agatgaagac ggtgatgatg 660

agtgaatcgt cgagtaccga tcaggttgtt ccactcaata aactcttgca acatgacgta 720

aatttgaagt ctgtttct 738

<210> 43
<211> 246
<212> PRT
<213> Arabidopsis thaliana

<220>
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<400> 43

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Asp	Ser	Asp	Asp	Ser	Ser	Asp	Asp	Ala	Ser	Ser	Val	Glu	Gly	Glu	Thr
		20					25					30			
Thr	Ser	Ser	Met	Tyr	Ser	Ala	Gly	Lys	Glu	Tyr	Met	Glu	Thr	Glu	Trp
	35					40					45				
Thr	Asn	Glu	Lys	His	Ser	Leu	Tyr	Leu	Lys	Ser	Met	Glu	Ala	Ser	Phe
50					55					60					
Val	Asp	Gln	Leu	Tyr	Asn	Ser	Leu	Gly	Ala	Leu	Gly	Lys	Asn	Glu	Asn
65				70					75					80	
Val	Ser	Glu	Ser	Thr	Arg	Phe	Gly	Ser	Gly	Arg	Lys	Pro	Ser	Gln	Glu
			85					90					95		
Gln	Phe	Lys	Val	Leu	His	Asp	Gly	Phe	Trp	Gln	Lys	Ile	Asn	Val	Lys
		100					105					110			
Gln	Pro	Glu	His	Arg	Ile	Asn	Gly	Arg	His	Gly	Gly	Asn	Ser	His	Glu
	115					120					125				
Phe	Leu	Arg	Ser	Pro	Trp	Ile	Lys	His	Tyr	Lys	Pro	Leu	Val	Lys	Thr
130					135					140					
Gln	Ile	Pro	Val	Thr	Asp	Glu	Pro	Glu	Asn	Gln	Val	Val	Ser	Ser	Ser
145				150					155					160	
Asn	Gly	Lys	Lys	Gly	Ile	Cys	Ser	Ser	Gly	Ser	Ala	Ser	Ser	Leu	Lys
			165					170					175		
Gln	Leu	Ser	Ser	His	Ser	Arg	Asp	His	Asp	Gln	Ile	Ser	Val	Gly	Glu
		180					185					190			
Ala	Glu	Val	Ser	Asp	Gln	Asn	Phe	Val	Asn	Glu	Gly	Ile	Lys	Gly	Glu
	195					200					205				
Asn	Gly	Ser	Ser	Lys	Lys	Met	Lys	Thr	Val	Met	Met	Ser	Glu	Ser	Ser
210					215					220					
Ser	Thr	Asp	Gln	Val	Val	Pro	Leu	Asn	Lys	Leu	Leu	Gln	His	Asp	Val
225				230					235					240	

Asn Leu Lys Ser Val Ser
245

<210> 44
<211> 633
<212> DNA
<213> Arabidopsis thaliana

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gggaagaacg agaatgtatc cgaatcaacg aggttcggta gcggtagaaa accgtctcaa 180

gaacagttca aggttcttca tgatggtttc tggcagaaga ttaatgtgaa acaacctgaa 240

catcggatta acggaaggca cggtggtaat tctcatgagt ttcttaggag tccatggatt 300

aagcattata aacctttagt aaagacacaa atcccggtaa cggatgagcc cgaaaatcaa 360

gttgttagca gctctaatgg gaagaaggga atatgcagct ctggctcagc ctctagtctc 420

aagcagctaa gctctcattc gcgtgaccac gaccaaatca gcgttggaga agcagaggta 480

tcggatcaga actttgttaa cgaaggaata aaaggcgaaa acggaagctc gaagaagatg 540

aagacggtga tgatgagtga atcgtcgagt accgatcagg ttgttccact caataaactc 600

ttgcaacatg acgtaaattt gaagtctgtt tct 633

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Lys His Ser Leu Tyr Leu Lys Ser Met Glu Ala Ser Phe Val Asp Gln
20 25 30

Leu Tyr Asn Ser Leu Gly Ala Leu Gly Lys Asn Glu Asn Val Ser Glu
35 40 45

Ser Thr Arg Phe Gly Ser Gly Arg Lys Pro Ser Gln Glu Gln Phe Lys
50 55 60

Val Leu His Asp Gly Phe Trp Gln Lys Ile Asn Val Lys Gln Pro Glu
65 70 75 80

His Arg Ile Asn Gly Arg His Gly Gly Asn Ser His Glu Phe Leu Arg
85 90 95

Ser Pro Trp Ile Lys His Tyr Lys Pro Leu Val Lys Thr Gln Ile Pro
100 105 110

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Val Thr Asp Glu Pro Glu Asn Gln Val Val Ser Ser Ser Asn Gly Lys
        115                 120                 125

Lys Gly Ile Cys Ser Ser Gly Ser Ala Ser Ser Leu Lys Gln Leu Ser
    130                 135                 140

Ser His Ser Arg Asp His Asp Gln Ile Ser Val Gly Glu Ala Glu Val
145                 150                 155                 160

Ser Asp Gln Asn Phe Val Asn Glu Gly Ile Lys Gly Glu Asn Gly Ser
                165                 170                 175

Ser Lys Lys Met Lys Thr Val Met Met Ser Glu Ser Ser Ser Thr Asp
            180                 185                 190

Gln Val Val Pro Leu Asn Lys Leu Leu Gln His Asp Val Asn Leu Lys
        195                 200                 205

Ser Val Ser
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<210> 46
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<212> DNA
<213> Artificial Sequence

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<220>
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<223> n is a, c, g, or t

<400> 46

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cgcatctcta attcatcttc gtcgagagga gctgttcctc ttctttgccg cctcgaatct    180

gggactggtc ggttttctgg atccctgctg cctgtcgggt tctcgagagg tgtaaaatcc    240

aatggagggt gtgtcatcgt tgaaccagcc gttgatcaac gacgaccggc agcccgtgcc    300

cagcagtatc gccaagggtg atcaaatcca aggcctgttg tcgggtgaat ggacaaatga    360

gcggcacagc tcgtacataa gctccatgga ggcatctttc gtggagcaac tccgtagtgg    420

ttccaaggcc atccaggagg gcttgtgcca gagcatgagg attccgaggg atgatgctcg    480

cagccatgac gtccctgaga gtccgtgggt ggtggtgagg cgtttcaggc cacgcggtgt    540

ccaccatggc gatggaatgg aagtggaacc tttggtcgat ggttatggat caggtactga    600

cacggcccng agagaaggtc cggacccacg caagatagcg aaggcttctg ctattattga    660

agtcacggac cagaattttc ctgaggaggg gattcaatcc agtaacggtg catgcaagag    720
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acagaaatct actcctggca atgcatcaaa tggccagggt acttaacaag atagtggaag 780

ccaagccatg ccctctctga agccttcagg aggccatggg ggaaacgaga cttgtctgca 840

gtactacgtg atgacaggtc gtgctgcagc tgcaagtagt ttggcttacc aaaatatgat 900

atcgtcgtcc tttctgcggt gtggagagta gaatatgcat atccacatct gcagagagca 960

ccggttctct tcttcttgtt gctgttacta ttttgtgcca tggagcaaat ttatttggta 1020

aatttgagct g 1031

<210> 47
<211> 174
<212> PRT
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<223> clone peptide 486033

<220>
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<400> 47

Met Glu Gly Val Ser Ser Leu Asn Gln Pro Leu Ile Asn Asp Asp Arg
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Gln Pro Val Pro Ser Ser Ile Ala Lys Gly Asp Gln Ile Gln Gly Leu
20 25 30

Leu Ser Gly Glu Trp Thr Asn Glu Arg His Ser Ser Tyr Ile Ser Ser
35 40 45

Met Glu Ala Ser Phe Val Glu Gln Leu Arg Ser Gly Ser Lys Ala Ile
50 55 60

Gln Glu Gly Leu Cys Gln Ser Met Arg Ile Pro Arg Asp Asp Ala Arg
65 70 75 80

Ser His Asp Val Pro Glu Ser Pro Trp Val Val Val Arg Arg Phe Arg
85 90 95

Pro Arg Gly Val His His Gly Asp Gly Met Glu Val Glu Pro Leu Val
100 105 110

Asp Gly Tyr Gly Ser Gly Thr Asp Thr Ala Xaa Arg Glu Gly Pro Asp
115 120 125

Pro Arg Lys Ile Ala Lys Ala Ser Ala Ile Ile Glu Val Thr Asp Gln

130 135 140

Asn Phe Pro Glu Glu Gly Ile Gln Ser Ser Asn Gly Ala Cys Lys Arg
145 150 155 160

Gln Lys Ser Thr Pro Gly Asn Ala Ser Asn Gly Gln Gly Thr
165 170

<210> 48
<211> 210
<212> PRT
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<220>
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<222> (3)..(3)
<223> Xaa is a tiny amino acid, specifically, alanine, glycine, serine or threonine

<220>
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<222> (5)..(5)
<223> Xaa is Thr or Pro

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<221> misc_feature
<222> (7)..(8)
<223> Xaa is a tiny amino acid, specifically, alanine, glycine, serine or threonine

<220>
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<222> (9)..(9)
<223> Xaa is Met or Gly

<220>
<221> misc_feature
<222> (10)..(10)
<223> Xaa is Tyr or Ile

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<222> (11)..(11)
<223> Xaa is a tiny amino acid, specifically, alanine, glycine, serine or threonine

<220>
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<222> (12)..(12)
<223> Xaa is Ala or Lys

<220>
<221> misc_feature
<222> (14)..(14)
<223> Xaa is Lys or Asn

<220>
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<222> (15)..(15)
<223> Xaa is Glu or Arg

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<222> (16)..(16)
<223> Xaa is Tyr or Val

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<222> (17)..(17)
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<220>
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<222> (18)..(18)
<223> Xaa is any amino acid

<220>
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<222> (19)..(19)
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<220>
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<223> At least 1 but as many as 4 of the Xaa amino acids can be present; Xaa is any amino acid

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<222> (26)..(26)
<223> Xaa is Asn or Asp

<220>
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<222> (28)..(28)
<223> Xaa is a positively charged residue, specifically, lysine, arginine, or histidine

<220>
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<222> (30)..(30)
<223> Xaa is any amino acid

<220>
<221> misc_feature
<222> (31)..(31)
<223> Xaa is Leu or Ser

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<222> (33)..(33)
<223> Xaa is an aliphatic residue, specifically, isoleucine, valine,

leucine, or methionine

<220>
<221> misc_feature
<222> (34)..(34)
<223> Xaa is Lys or Ser

<220>
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<222> (42)..(42)
<223> Xaa is any negatively charged amino acid, specifically, aspartic acid or glutamic acid

<220>
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<222> (45)..(74)
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<222> (76)..(76)
<223> Xaa is Val or Ala

<220>
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<222> (77)..(77)
<223> Xaa is an aliphatic residue, specifically, isoleucine, valine, leucine, or methionine

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<222> (78)..(79)
<223> Xaa is any amino acid

<220>
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<222> (80)..(80)
<223> Xaa is Gly or Glu

<220>
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<222> (81)..(82)
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<222> (83)..(83)
<223> Xaa is Gln or Glu

<220>
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<222> (84)..(102)
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<222> (103)..(103)
<223> Xaa is His or Cys

<220>
<221> misc_feature

<222> (104)..(104)
<223> Xaa is any amino acid

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<222> (106)..(106)
<223> Xaa is Leu or Pro

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<222> (114)..(114)
<223> Xaa is any amino acid

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<222> (115)..(115)
<223> Xaa is a positively charged residue, specifically, lysine, arginine, or histidine

<220>
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<222> (116)..(116)
<223> Xaa is any aromatic residue, specifically, phenylalanine, tyrosine, or tryptophan

<220>
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<223> Xaa is a positively charged residue, specifically, lysine, arginine, or histidine

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<222> (131)..(131)
<223> Xaa is Glu or Asn

<220>
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<222> (132)..(139)
<223> Xaa is any amino acid

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<222> (140)..(140)
<223> Xaa is Gly

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<222> (141)..(146)
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<222> (148)..(148)
<223> Xaa is Gly or Pro

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<222> (149)..(149)
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<223> Xaa is any amino acid

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<222> (151)..(151)
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<223> Xaa is any amino acid

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<222> (177)..(177)
<223> Xaa is Glu or Ser

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<222> (188)..(189)
<223> Xaa is any amino acid

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<222> (190)..(190)
<223> Xaa is any negatively charged amino acid, specifically, aspartic acid or glutamic acid

<220>
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<222> (191)..(191)
<223> Xaa is Gly or Glu

<220>
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<222> (192)..(192)
<223> Xaa is Ile or Ala

<220>
<221> misc_feature
<222> (193)..(193)
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<220>
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<220>
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<222> (197)..(197)
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<220>
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<222> (199)..(199)
<223> Xaa is any amino acid

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<222> (201)..(202)
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<223> Xaa is Met or Arg

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<222> (209)..(209)
<223> Xaa is Glu or Arg

<220>
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<222> (210)..(210)
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<400> 48

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Xaa Xaa Xaa Xaa Xaa Xaa Xaa Trp Thr Xaa Glu Xaa His Xaa Xaa Tyr
            20                  25                  30

Xaa Xaa Ser Met Glu Ala Ser Phe Val Xaa Gln Leu Xaa Xaa Xaa Xaa
        35                  40                  45

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
    50                  55                  60

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Lys Xaa Xaa Xaa Xaa Xaa
65                  70                  75                  80

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
                85                  90                  95

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Pro Trp Xaa Xaa
            100                 105                 110

Xaa Xaa Xaa Xaa Xaa Pro Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Asp
        115                 120                 125

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
    130                 135                 140

Xaa Xaa Ser Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
145                 150                 155                 160

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
                165                 170                 175

Xaa Xaa Xaa Xaa Glu Val Xaa Asp Gln Asn Phe Xaa Xaa Xaa Xaa Xaa
            180                 185                 190

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Lys Xaa Xaa Lys Xaa Xaa Xaa Xaa Ser
        195                 200                 205
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Xaa Xaa
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<211> 241
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<220>
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<222> (3)..(10)
<223> Xaa is any amino acid

<220>
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<222> (11)..11)
<223> Xaa is Glu or Gly

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<222> (17)..(17)
<223> Xaa is a tiny amino acid, specifically, alanine, glycine, serine or threonine

<220>
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<222> (18)..(31)
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<222> (36)..(36)
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or histidine

<220>
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<222> (38)..(39)
<223> Xaa is any amino acid

<220>
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<222> (41)..(41)
<223> Xaa is an aliphatic residue, specifically, isoleucine, valine, leucine, or methionine

<220>
<221> misc_feature
<222> (42)..(42)
<223> Xaa is any amino acid

<220>
<221> misc_feature
<222> (43)..(43)
<223> Xaa is Ser or Tyr

<220>
<221> misc_feature
<222> (44)..(44)
<223> Xaa is an aliphatic residue, specifically, isoleucine, valine, leucine, or methionine

<220>
<221> misc_feature
<222> (46)..(46)
<223> Xaa is a tiny amino acid, specifically, alanine, glycine, serine or threonine

<220>
<221> misc_feature
<222> (50)..(50)
<223> Xaa is any amino acid

<220>
<221> misc_feature
<222> (52)..(52)
<223> Xaa is Lys or Ser

<220>
<221> misc_feature
<222> (53)..(135)
<223> At least 8 but as many as 83 of the Xaa amino acids can be present; Xaa is any amino acid

<220>
<221> misc_feature
<222> (136)..(136)
<223> Xaa is Pro or Glu

<220>
<221> misc_feature
<222> (137)..(137)
<223> Xaa is any aromatic residue, specifically, phenylalanine, tyrosine, and tryptophan

<220>

<221> misc_feature
<222> (138)..(141)
<223> At least 2 but as many as 4 of the Xaa amino acids can be present; Xaa is any amino acid

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<221> misc_feature
<222> (142)..(142)
<223> Xaa is a positively charged residue, specifically, lysine, arginine, or histidine

<220>
<221> misc_feature
<222> (143)..(231)
<223> At least 9 but as many as 89 of the Xaa amino acids can be present; Xaa is any amino acid

<220>
<221> misc_feature
<222> (233)..(234)
<223> Xaa is any amino acid

<220>
<221> misc_feature
<222> (235)..(235)
<223> Xaa is Asp or Gly

<220>
<221> misc_feature
<222> (239)..(240)
<223> Xaa is any amino acid

<220>
<221> misc_feature
<222> (241)..(241)
<223> Xaa is any negatively charged amino acid, specifically, aspartic acid or glutamic acid

<400> 49

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
1 5 10 15

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Trp
20 25 30

Thr Xaa Glu Xaa His Xaa Xaa Tyr Xaa Xaa Xaa Xaa Glu Xaa Ser Phe
35 40 45

Val Xaa Gln Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
50 55 60

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
65 70 75 80

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa

85 90 95

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
100 105 110

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
115 120 125

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
130 135 140

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
145 150 155 160

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
165 170 175

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
180 185 190

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
195 200 205

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
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Xaa Xaa Xaa Xaa Xaa Xaa Xaa Glu Xaa Xaa Xaa Gln Asn Phe Xaa Xaa
225 230 235 240

Xaa

<210> 50
<211> 19
<212> DNA
<213> Artificial Sequence

<220>
<223> Oligo primer used in the generation of labeled probes for hybridization from first-strand cDNA

<400> 50
ttttttttt tttttttv 19